DCR Draft Stormwater Quantity Strawman
May 23, 2008

Water Quantity

In order to protect state waters from the potential harms of unmanaged quantities of stormwater runoff, the following technical criteria and statewide standards for stormwater management shall apply to land disturbing activities:

A. Properties and state waters receiving stormwater runoff from any land-disturbing activity shall be protected from sediment deposition, erosion and damage due to changes in runoff rate of flow and hydrologic characteristics, including but not limited to, changes in volume, velocity, frequency, duration, and peak flow rate of stormwater runoff in accordance with the minimum water quantity standards set out in this section.

B. Pursuant to §10.1-603.4 subsection 7, a local program shall require that land disturbing activities:

1. Maintain post-development runoff rate of flow and runoff characteristics that replicate, as nearly as practicable, the existing predevelopment runoff characteristics and site hydrology.

2. If stream channel erosion or localized flooding exists at the site prior to the proposed land disturbing activity, the project shall improve to the extent practicable upon the contributing share of the existing predevelopment runoff characteristics and site hydrology.

C. For the purposes of determining compliance with subsection B, a local program shall require the following:

1. If the total site drainage area contributing to a stormwater outfall is less than or equal to 1 percent of the total watershed area draining to the point of the outfall, no water quantity controls shall be required.

2. If the condition in C1 is not met then the following is required:

a. Pre-development runoff characteristics and site hydrology shall be verified by physical surveys, geotechnical investigations, and calculations that are consistent with good engineering practices that are acceptable to the local program authority.

b. Flooding and channel erosion impacts to receiving streams due to land-disturbing activities shall be calculated for each point of discharge from the land disturbance and such calculations shall include any runoff from the balance of the watershed which also contributes to that point of discharge. Flooding and channel erosion impacts shall be evaluated taking the entire upstream watershed into account, including the modifications from the planned land disturbance. Good engineering practices and calculations shall be used to demonstrate post development runoff characteristics and site hydrology, and flooding and channel erosion impacts.

c. Stormwater runoff from new development projects or projects occurring on prior developed lands shall be released into a channel at a peak flow rate ($Q_{Developed}$) based on the 1.5-year 24-hour storm, calculated as follows or in accordance with another methodology that is demonstrated to achieve equivalent results and is approved by the board:

$Q_{Developed} = Q_{Forested} * (RV_{Forested} / RV_{Developed})$, where

$Q_{Developed}$ = The allowable peak flow rate from the developed site

$Q_{Forested}$ = The peak flow rate from the site in a forested condition

$RV_{Forested}$ = The volume of rainfall runoff expected from the site in a forested condition

$RV_{Developed}$ = The volume of rainfall runoff expected from the developed site

d. If the stormwater runoff from the developed site is released into an engineered channel or conveyance system that is designed to convey the 10-year 24-hour storm without causing channel erosion or localized flooding then C2c of this section does not apply. The discharge from the site shall not exceed the design criteria of the engineered channel or conveyance system.

e. If the stormwater runoff from the developed site is released into a conveyance system restored based on natural channel design (stream restoration) and the discharge from the site does not exceed the design criteria of the restored channel then C2c of this section does not apply.

f. In order to prevent localized flooding, the post development peak flow rate for stormwater runoff resulting from the 10-year 24-hour storm shall not exceed the predevelopment peak flow rate as follows:

i. If released to a natural channel the predevelopment rate shall be based on a forested condition.

ii. If released to an engineered channel or conveyance system the predevelopment rate shall not exceed the design criteria of the engineered channel or conveyance system.

3. For purposes of computing predevelopment runoff on prior developed sites, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation. Predevelopment runoff calculations utilizing other land cover values may be utilized where stream channel erosion or localized flooding at the site does not exist provided that it is demonstrated to and approved by the local program authority that actual site conditions warrant such considerations.

D. Notwithstanding the requirements of subsection C, any land disturbing activity shall be deemed to have satisfied the requirements of subsection B if the practices implemented on the site are designed to:

1. Detain the water quality volume and to release it over 48 hours;

2. Detain and release over a 24-hour period the expected rainfall resulting from the one year, 24 hour storm; and

3. Reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming that it was in good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the

site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition.

Such land disturbing activity shall further be exempt from any flow rate capacity and velocity requirements for natural or manmade channels as defined in any other section of this regulation.

Design Storms

For the purposes of this chapter, unless otherwise specified, the specified design storms shall be defined as the 1.5, 2, and 10-year 24-hour storms using the site-specific rainfall precipitation frequency data recommended by the U.S. National Oceanic and Atmospheric Administration (NOAA) Atlas 14 or the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). The local program may allow for the use of the Modified Rational (critical storm duration) Method.